

## CLAIMS

1. A method of attenuating exhaust noise from an engine with a first group of active cylinders connected to a first exhaust manifold and a second group of deactivatable cylinders connected to a second exhaust manifold, the method comprising:
  - 5 connecting the second exhaust manifold to the first exhaust manifold such that the second exhaust manifold acts as a resonator to attenuate sound from the first group of active cylinders when the second group of cylinders is deactivated.
2. The method of claim 1, further comprising selecting the length of the second manifold to form a one-quarter wave tuner such that the length of the second manifold is approximately one-quarter ( $1/4$ ) the wavelength of sound emanating from the first group of active cylinders.
3. The method of claim 1, further comprising selectively adjusting the effective length of the second manifold by closing a valve positioned in the second manifold.
4. The method of claim 1, further comprising connecting the first and second exhaust manifolds with a pipe, and providing a downstream valve in the second manifold between a tailpipe and the point at which the second manifold connects to said pipe.
5. The method of claim 4, further comprising providing a crossover valve in the pipe to selectively connect the first and second manifolds.

6. A system for attenuating exhaust noise from an engine with a first group of active cylinders and a second group of deactivatable cylinders, the system comprising:

5 a first exhaust manifold connected to the first group of active cylinders; and

a second exhaust manifold connected to the second group of deactivatable cylinders;

10 said second exhaust manifold being connected to the first exhaust manifold such that the second exhaust manifold acts as a resonator to attenuate sound from the first group of active cylinders when the second group of cylinders is deactivated.

7. The system of claim 6, wherein the second manifold has a length which is approximately one-quarter ( $1/4$ ) the wavelength of sound emanating from the first group of cylinders, thereby forming a one-quarter wave tuner.

8. The system of claim 6, further comprising a valve positioned in the second manifold for selectively adjusting the effective attenuation length of the second manifold.

9. The system of claim 6, further comprising a pipe connecting the first and second manifolds, and a downstream valve positioned in the second manifold between a tailpipe and the point at which the second manifold connects to the pipe.

10. The system of claim 9, further comprising a crossover valve in the pipe to selectively connect the first and second manifolds.

11. The system of claim 6, wherein the engine is a transversely oriented engine.

12. The system of claim 6, wherein the engine is a longitudinally oriented engine.

13. The system of claim 6, further comprising first and second tailpipes connected to the first and second manifolds, respectively.

14. A system for attenuating exhaust noise from an engine with a first group of active cylinders and a second group of deactivatable cylinders, the system comprising:

5 a first exhaust manifold connected to the first group of active cylinders;

a second exhaust manifold connected to the second group of deactivatable cylinders;

10 said second exhaust manifold being connected to the first exhaust manifold such that the second exhaust manifold acts a resonator to attenuate sound from the first group of active cylinders when the second group of cylinders is deactivated; and

15 a valve positioned in the second manifold for selectively adjusting the effective length of the second manifold to provide an effective length which is approximately one-fourth the wavelength of sound emanating from the first group of cylinders, thereby forming a quarter-wave tuner.

15. The system of claim 14, wherein said valve has a hole formed therein to form a Helmholtz resonator.